REMARKS

The foregoing amendments and the following remarks are responsive to the November 13, 2006 Office Action. Claims 1, 7, 13, 34, and 40 remain as previously presented, Claims 2, 3, 5, 8-12, 14-16, and 35-38 remain as originally filed, and Claims 4 and 17-33 are cancelled without prejudice. Thus, Claims 1-3, 5-16, and 34-40 are presented for further consideration. Please enter the amendments and reconsider the claims in view of the following remarks.

Response to Rejection of Claims 1-3, 6-9, 12, 13, 16, 34-36, 39, and 40 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejected Claims 1-3, 6-9, 12, 13, 16, 34-36, 39, and 40 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,177,562 issued to Wysocki et al. ("Wysocki") in view of U.S. Patent No. 5,875,203 issued to Wagener et al. ("Wagener").

Contrary to the Examiner's assertion that Wagener is a "newly discovered reference," Applicants note that Wagener was previously cited in the September 9, 2005 Office Action in rejections of Claims 10, 11, 19, 20, 28-33, 37, and 38.

Claims 1-3

As currently pending, Claim 1 recites (emphasis added):

> 1. A method of stabilizing the mean wavelength of light generated by a superfluorescent fiber source (SFS), the method comprising:
>
> providing the SFS, the SFS comprising:
>
> an Er-doped fiber (EDF) having a first end, a second end, and a length between the first end and the second end;
>
> a coupler optically coupled to the first end of the EDF;
>
> a pump source optically coupled to the coupler, the pump source producing pump light, the mean wavelength influenced by a wavelength of the pump light, the wavelength of the pump light dependent on the temperature of the pump source and dependent on the power of the pump light, the pump light propagating to the EDF via the coupler, whereby the EDF responds to the pump light by producing forward amplified spontaneous emission (ASE) light propagating away from the pump source and backward ASE light propagating towards the pump source;
>
> a mirror optically coupled to the coupler, whereby the mirror reflects the backward ASE light as reflected ASE light which propagates to the EDF, the reflected ASE light amplified upon traveling through the EDF, the forward ASE light and the

> amplified reflected ASE light propagating out of the second end of the EDF; and
>
> an optical isolator coupled to the second end of the EDF, the forward ASE light and the amplified reflected ASE light from the second end of the EDF being transmitted through the optical isolator as the SFS output light;
>
> **optimizing the length of the EDF, wherein the optimizing the length of the EDF comprises selecting the length to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light**; and
>
> reducing the influence of the pump light wavelength on the stability of the mean wavelength.

Applicants submit that Claim 1 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. For example, neither Wysocki nor Wagener discloses or suggests "optimizing the length of the EDF" which comprises "selecting the length to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light," as recited by Claim 1.

Wysocki discloses that the spectral properties of the output signal are substantially altered for greater lengths of optical fibers. Wysocki further discloses using a fiber length longer than the optimal length for generating forward signal power for all pump power levels in order to, among other reasons, reduce the forward signal. (Wysocki at col. 12, lines 46-60.) Thus, while Wysocki does disclose increasing the length of optical fibers in part to reduce the forward signal, Wysocki does not disclose or suggest optimizing the fiber length by selecting a fiber length "to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light," as recited by Claim 1.

Wagener at column 8, lines 24-37 discloses that:

> the operating point at which the stable mean wavelength point occurs can be varied by varying certain system design parameters. ... For the case of determining the stable point for the mean wavelength versus pump power, **changing the overall length of the fiber 235 results in an adjustment of the stable operating point so that the desired stable point can be set by adjusting the fiber length**. For example, for the embodiment described herein, an increase in the fiber length results in an increase of the power level at which the stable operating point occurs.

While Wagener discloses increasing the length of the optical fiber to move the stable mean wavelength point versus pump power, Wagener does not disclose or suggest that the length can be used to reduce the dependence of the mean wavelength on the pump light power. Thus, Wagener does not disclose or suggest "optimizing the length of the EDF [by] selecting the length to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light," as recited by Claim 1.

Because Claim 1 includes limitations that are not disclosed or suggested by either Wysocki or Wagener, Applicants submit that Claim 1 is patentably distinguished over Wysocki in view of Wagener. Each of Claims 2 and 3 depends from Claim 1, so each of Claims 2 and 3 includes all the limitations of Claim 1 as well as other limitations of particular utility. Therefore, Claims 2 and 3 are patentably distinguished over Wysocki in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claims 1-3 and pass these claims to allowance.

Claim 6

Applicants have amended Claim 6 to recite (emphasis added):

> 6. A method of stabilizing the mean wavelength of light generated by a superfluorescent fiber source (SFS), the method comprising:
>
> providing the SFS, the SFS comprising:
>
> an Er-doped fiber (EDF) having a first end, a second end, and a length between the first end and the second end;
>
> a coupler optically coupled to the first end of the EDF;
>
> a pump source optically coupled to the coupler, the pump source producing pump light, the mean wavelength influenced by a wavelength of the pump light, the wavelength of the pump light dependent on the temperature of the pump source and dependent on the power of the pump light, the pump light propagating to the EDF via the coupler, whereby the EDF responds to the pump light by producing forward amplified spontaneous emission (ASE) light propagating away from the pump source and backward ASE light propagating towards the pump source;
>
> a mirror optically coupled to the coupler, whereby the mirror reflects the backward ASE light as reflected ASE light which propagates to the EDF, the reflected ASE light amplified upon traveling through the EDF, the forward ASE light and the amplified reflected ASE light propagating out of the second end of the EDF; and

an optical isolator coupled to the second end of the EDF, the forward ASE light and the amplified reflected ASE light from the second end of the EDF being transmitted through the optical isolator as the SFS output light;

optimizing the length of the EDF, wherein the optimizing the length of the EDF comprises selecting the length to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light; and

reducing the influence of the pump light wavelength on the stability of the mean wavelength, wherein reducing the influence of the pump light wavelength on the stability of the mean wavelength comprises tuning the pump source to a wavelength at which a first-order dependence of the mean wavelength on the pump light wavelength is small or substantially zero.

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that amended Claim 6 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that amended Claim 6 is patentably distinguished over Wysocki in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claim 6 and pass Claim 6 to allowance.

Claims 7-9, 12, and 16

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that Claim 7 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that Claim 7 is patentably distinguished over Wysocki in view of Wagener. Each of Claims 8, 9, 12, and 16 depends from Claim 7, so each of Claims 8, 9, 12, and 16 includes all the limitations of Claim 7 as well as other limitations of particular utility. Applicants respectfully request that the Examiner withdraw the rejection of Claims 7-9, 12, and 16 and pass these claims to allowance.

Claim 13

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that Claim 13 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that Claim 13 is patentably distinguished over Wysocki in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claim 13 and pass Claim 13 to allowance.

Claims 34-36

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that Claim 34 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that Claim 34 is patentably distinguished over Wysocki in view of Wagener. Each of Claims 35 and 36 depends from Claim 34, so each of Claims 35 and 36 includes all the limitations of Claim 34 as well as other limitations of particular utility. Applicants respectfully request that the Examiner withdraw the rejection of Claims 34-36 and pass these claims to allowance.

Claim 39

Applicants have amended Claim 39 to recite (emphasis added):

> 39. A superflourescent fiber source (SFS) to generate output light having a mean wavelength with a selected stability, the SFS comprising:
>
> an Er-doped fiber (EDF) having a first end, a second end, and a length between the first end and the second end;
>
> a coupler optically coupled to the first end of the EDF;
>
> a pump source optically coupled to the coupler, the pump source producing pump light, the mean wavelength influenced by a wavelength of the pump light, the wavelength of the pump light dependent on the temperature of the pump source and dependent on the power of the pump light, the pump light propagating to the EDF via the coupler, whereby the EDF responds to the pump light by producing forward amplified spontaneous emission (ASE) light propagating away from the pump source and backward ASE light propagating towards the pump source;
>
> a mirror optically coupled to the coupler, whereby the mirror reflects the backward ASE light as reflected ASE light which propagates to the EDF, the reflected ASE light amplified upon traveling through the EDF, the forward ASE light and the amplified reflected ASE light propagating out of the second end of the EDF; and
>
> an optical isolator coupled to the second end of the EDF, the forward ASE light and the amplified reflected ASE light from the second end of the EDF being transmitted through the optical isolator as the SFS output light, wherein the mean wavelength of output light has a stability dependent on the length of the EDF, the pump source having a wavelength at which a first order dependence of the mean wavelength on the pump light wavelength is small or substantially zero, **wherein the length of the EDF compromises between reduction of dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light.**

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that amended Claim 39 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that amended Claim 39 is patentably distinguished over Wysocki in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claim 39 and pass Claim 39 to allowance.

Claim 40

At least for reasons similar to those discussed above with regard to Claim 1, Applicants submit that amended Claim 40 includes limitations that are not disclosed or suggested by either Wysocki or Wagener. Therefore, Applicants submit that amended Claim 40 is patentably distinguished over Wysocki in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claim 40 and pass Claim 40 to allowance.

Response to Rejection of Claims 17, 18, 21-23, and 25-27 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claims 17, 18, 21-23, and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,313,480 issued to Fidric et al. ("Fidric"). Applicants have cancelled Claims 17, 18, 21-23, and 25-27 without prejudice. Applicants respectfully request that the Examiner consider the allowability of the remaining pending claims.

Response to Rejection of Claim 5 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Wysocki in view of Fidric.

As described above with regard to Claim 1, Applicants submit that Wysocki does not disclose or suggest all the limitations of Claim 1. For example, Wysocki does not disclose or suggest "optimizing the length of the EDF" which comprises "selecting the length to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light," as recited by Claim 1. Applicants further submit that Fidric does not disclose or suggest the limitations of Claim 1 which are not disclosed or suggested by Wysocki. Therefore, Applicants submit that Claim 1 is patentably distinguished over the combination of Wysocki in view of Fidric.

Claim 5 depends from Claim 1, so Claim 5 includes all the limitations of Claim 1 as well as other limitations of particular utility. For at least the reasons that Claim 1 is patentably

distinguished over Wysocki in view of Fidric, Applicants submit that Claim 5 is patentably distinguished over Wysocki in view of Fidric. Applicants respectfully request that the Examiner withdraw the rejection of Claim 5 and pass Claim 5 to allowance.

Response to Rejection of Claims 10, 11, 28-32, 37, and 38 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claims 10, 11, 28-32, 37, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Wysocki in view of U.S. Patent No. 6,144,788 issued to Ang et al. ("Ang") and further in view of Wagener.

Claims 10 and 11

As discussed above with regard to Claim 7, Applicants submit that Claim 7 includes limitations that are not disclosed or suggested by Wysocki in view of Wagener. Applicants further submit that Ang does not disclose or suggest the limitations of Claim 7 which are missing from Wysocki in view of Wagener. Therefore, Applicant submit that Claim 7 is patentably distinguished over Wysocki in view of Ang and further in view of Wagener.

Each of Claims 10 and 11 depends from Claim 7, so each of Claims 10 and 11 includes all the limitations of Claim 7 as well as other limitations of particular utility. For at least the reasons that Claim 7 is patentably distinguished over Wysocki in view of Ang and further in view of Wagener, Applicants submit that Claims 10 and 11 are patentably distinguished over Wysocki in view of Ang and further in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claims 10 and 11 and pass these claims to allowance.

Claims 28-32

Applicants note that Claims 28-32 were cancelled without prejudice in the "Amendment and Response to August 17, 2006 Office Action." Applicants respectfully request that the Examiner consider the allowability of the remaining pending claims.

Claims 37 and 38

As discussed above with regard to Claim 34, Applicants submit that Claim 34 includes limitations that are not disclosed or suggested by Wysocki in view of Wagener. Applicants further submit that Ang does not disclose or suggest the limitations of Claim 34 which are missing from Wysocki in view of Wagener. Therefore, Applicant submit that Claim 34 is patentably distinguished over Wysocki in view of Ang and further in view of Wagener.

Each of Claims 37 and 38 depends from Claim 34, so each of Claims 37 and 38 includes all the limitations of Claim 34 as well as other limitations of particular utility. For at least the reasons that Claim 34 is patentably distinguished over Wysocki in view of Ang and further in view of Wagener, Applicants submit that Claims 37 and 38 are patentably distinguished over Wysocki in view of Ang and further in view of Wagener. Applicants respectfully request that the Examiner withdraw the rejection of Claims 37 and 38 and pass these claims to allowance.

Response to Rejection of Claim 14 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Wysocki in view of U.S. Patent No. 6,429,965 issued to Falquier et al. ("Falquier").

As described above with regard to Claim 7, Applicants submit that Wysocki does not disclose or suggest all the limitations of Claim 7. For example, Wysocki does not disclose or suggest "the length of the EDF is optimized to compromise between reduction of the dependence of the mean wavelength on the pump light power and reduction of the contribution of the forward ASE light to the output light," as recited by Claim 7. Applicants further submit that Falquier does not disclose or suggest the limitations of Claim 7 which are not disclosed or suggested by Wysocki. Therefore, Applicants submit that Claim 7 is patentably distinguished over the combination of Wysocki in view of Falquier.

Claim 14 depends from Claim 7, so Claim 14 includes all the limitations of Claim 7 as well as other limitations of particular utility. For at least the reasons that Claim 7 is patentably distinguished over Wysocki in view of Falquier, Applicants submit that Claim 14 is patentably distinguished over Wysocki in view of Falquier. Applicants respectfully request that the Examiner withdraw the rejection of Claim 14 and pass Claim 14 to allowance.

Response to Rejection of Claim 15 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Wysocki in view Falquier and further in view of U.S. Patent No. 6,404,950 issued to Tsukitani et al. ("Tsukitani").

As described above with regard to Claim 14, Applicants submit that Wysocki in view of Falquier does not disclose or suggest all the limitations of Claim 14. Applicants further submit that Tsukitani does not disclose or suggest the limitations of Claim 14 which are not disclosed or

suggested by Wysocki in view of Falquier. Therefore, Applicants submit that Claim 14 is patentably distinguished over the combination of Wysocki in view of Falquier and further in view of Tsukitani.

Claim 15 depends from Claim 14, so Claim 15 includes all the limitations of Claim 14 as well as other limitations of particular utility. For at least the reasons that Claim 14 is patentably distinguished over Wysocki in view of Falquier and further in view of Tsukitani, Applicants submit that Claim 15 is patentably distinguished over Wysocki in view of Falquier and further in view of Tsukitani. Applicants respectfully request that the Examiner withdraw the rejection of Claim 15 and pass Claim 15 to allowance.

Response to Rejection of Claim 33 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claim 33 under 35 U.S.C. § 103(a) as being unpatentable over Wysocki in view of Ang in view of Wagener and further in view of Falquier.

Applicants note that Claim 33 was cancelled without prejudice in the "Amendment and Response to August 17, 2006 Office Action." Applicants respectfully request that the Examiner consider the allowability of the remaining pending claims.

Response to Rejection of Claims 19 and 20 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claims 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Fidric in view of Ang and further in view of Wagener.

Applicants note that Claims 19 and 20 were cancelled without prejudice in the "Amendment and Response to September 9, 2005 Office Action." Applicants respectfully request that the Examiner consider the allowability of the remaining pending claims.

Response to Rejection of Claim 24 Under 35 U.S.C. § 103(a)

In the November 13, 2006 Office Action, the Examiner rejects Claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Fidric in view of Falquier.

Applicants have cancelled Claim 24 without prejudice. Applicants respectfully request that the Examiner consider the allowability of the remaining pending claims.

Summary

In view of the foregoing amendments and remarks, Applicants submit that Claims 1-3, 5-16, and 34-40 are in condition for allowance and Applicants respectfully request such action. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 2/9/07

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